

## CLAIMS :

1. A demodulator to demodulate frequency-modulated signals including a phase locked loop including at least a phase detector, a loop filter and a voltage controlled oscillator function VCO, characterized in that said voltage controlled oscillator function VCO has a modifiable gain.

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2. A demodulator as claimed in Claim 1, wherein the gain of said voltage controlled oscillator function VCO is modifiable using a programmable transconductance.

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3. A demodulator as claimed in Claim 2, wherein the programmable transconductance includes a fixed transconductance, a current multiplier, the output of said programmable transconductance being the output of a summation unit that sums a combination of at least one output of said multiplier.

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4. A demodulator as claimed in Claim 3, wherein said second current is taken from an intermediate output of said current multiplier using digitally programmable switches.

5. A demodulator as claimed in Claim 4, wherein said switches are MOS switches.

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6. An electronic device able to receive frequency-modulated signals characterized in that demodulation of said signals is realized by a demodulator as claimed in one of the Claims 1 to 5.

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7. A method for demodulating frequency-modulated signals including the steps of :

- applying said frequency-modulated signals at the input of a phase locked loop including at least a phase detector, a loop filter and a voltage controlled oscillator function VCO,

- increasing frequency variations by increasing gain of the voltage controlled oscillator function VCO having a modifiable gain,
- producing demodulated signals at the output of said the phase locked loop.